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Notes on European Agromyzidae (Diptera) — 1

With 35 textfigures

Since publication of HENDEL's (1931—6) comprehensive Monograph there has been an immense increase in our knowledge of the European Agromyzidae and numerous new species have been described. Study of types not available to HENDEL and in particular examination of male genitalia have shown the need for a systematic revision of all European species. The genera *Ophiomyia* BRASCHNIKOV, *Melanagromyza* HENDEL and *Hexomyza* ENDERLEIN have recently been revised by SPENCER (1964b, 1966a); smaller species groups have been revised by NOWAKOWSKI (1959, 1964), SPENCER (1963a, 1963b) and GRIFFITHS (1963); other species have been revised on a geographical basis by GRIFFITHS (1964b, Iceland and Faroes) and (1966, Greenland) and by SPENCER (1965b, Canaries); a further revisionary paper has been prepared by SPENCER (1965c) dealing with all species described by FALLÉN. Another important revisionary paper is in preparation by NOWAKOWSKI on the genus *Cerodontha* RONDANI.

Despite the many revisionary papers which have appeared in recent years some 600 species still await revision. Numerous synonymies remain to be discovered and many existing species will be found to represent species-groups. In this paper I have clarified 30 species and 6 new species are described. It will be many years before generic revisions can be prepared covering the species discussed here and it has therefore seemed preferable to deal with the species concerned now, rather than delay publication for an indefinite period.

It has been of great value to be able to examine many of STROBL's type specimens and I would like to express my special thanks to Dr. habil. G. MORGE for the facilities afforded to study the STROBL collection of the Natural History Museum Admont (Austria) at the Deutsches Entomologisches Institut, Eberswalde. I am also most grateful to Prof. Dr. E. M. HERING, Berlin and Dr. A. KALTENBACH, Vienna, for the loan of type material. I also wish to thank my wife for preparation of the genitalia drawings.

Genus *Agromyza* FALLÉN

I have on several occasions collected a species both in the Barcelona and Malaga-Ronda areas of Spain which appeared to represent *A. occellaris* HENDEL, 1920. Examination of the holotypes of *A. rondensis* STROBL and *A. occellaris* HENDEL revealed three new synonymies and an important misidentification, necessitating the description of a new species, *A. conjuncta* sp. n., which represents the species incorrectly accepted by HENDEL (1931—6) et auct. post as *A. occellaris* HENDEL, 1920.

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Clarification of *A. megalopsis* HERING showed that an undescribed species bred from *Bromus* at Berlin had been misidentified as *megalopsis*; this species is described below as *Agromyza bromi* sp. n.

Examination of an *Agromyza* sp. bred from *Celtis laevigata* WILLD. in Florida led to the discovery that *A. celtidis* NOWAKOWSKI bred from *Celtis australis* LINNAEUS in Yugoslavia represents a new synonym of *A. trebinjensis* STROBL, also described from Yugoslavia.

***Agromyza bromi* sp. n.**

Adult: morphologically exactly as in *A. nigrella* RONDANI, apart from slightly less projecting frons and possibly smaller size, wing length 2.6 mm.

Male genitalia: aedeagus entirely distinctive, as in Figs. 1, 2; ninth sternite somewhat narrow and elongated; surstyli slightly elongated but broader, shorter than in *A. nigrella*.

Puparium: posterior spiracles each with 3 bulbs, arising from separate base (Fig. 3).

Holotype ♂, Berlin, Botanical Gardens, ex leaf-mine on *Bromus catharticus* VAHL, 23. vii. 1960, leg. HERING, in author's collection.

The distinctive genitalia and different larval spiracles immediately confirm that this is a distinct species, although on external characters the adult may not be satisfactorily distinguishable from *A. nigrella*.

***Agromyza conjuncta* sp. n.**

Exactly as in *A. rondensis* STROBL apart from following points of difference:

frons entirely black; mesonotum shining-black; squamal fringe not silvery-white, distinctly ochrous; male genitalia: aedeagus as in Figs. 4, 5; surstyli less elongated, as in Fig. 6.

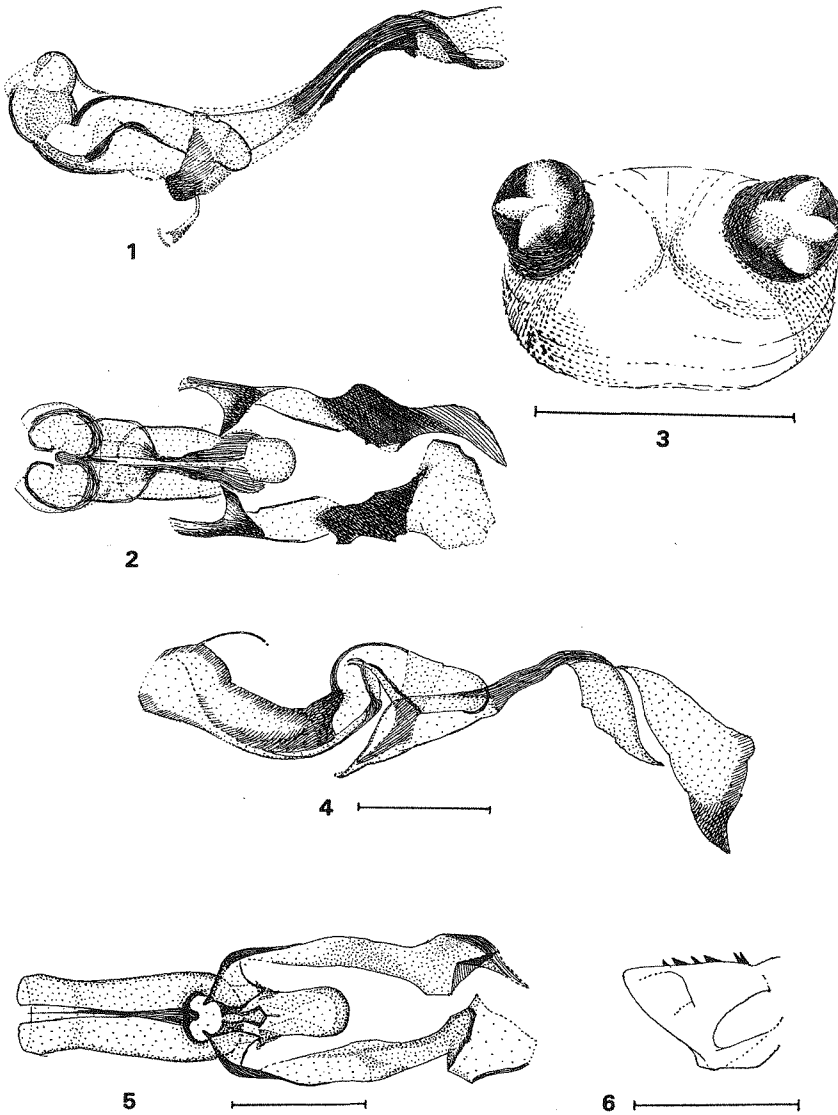
Holotype ♂, Spain, Coin, nr. Malaga, 9. iv. 1965 (K.A.S.); paratypes: Spain, Coin, 1 ♂, 9. iv. 1965; Marbella, 1 ♂, 7. iv. 1965, 1 ♀, 8. iv. 1965; Barcelona-Tibidabo, 1 ♂, 2 ♀♀, 24. iv. 1958; 2 ♀♀, 12. iv. 1961; 1 ♂, 4. iv. 1963; Sicily, Etna-Trecastragni, 1 ♀, 8. iv. 1964 (all K.A.S.); Scotland, Dumbartonshire, Bonhill, 6 ♂, 5 ♀♀, 1910–20 (Malloch); Italy, San Remo, 1 ♀, May (BECKER); Yugoslavia, Dalmatia, Orebić, 1 ♀, 18.–22. v. 1930 (ZERNY); U.S.S.R., Poltava, 1 ♂ (without head), 8. vi. 1928 (A. KOLOBOWA); Belgium, Gembloux, 1 ♀, 6. vii. 1942 (BRUEL).

Holotype and paratypes in author's collection; paratypes in Naturhistorisches Museum, Vienna and Royal Scottish Museum, Edinburgh.

This is the species, as explained below on p. 290, which HENDEL in 1931 and subsequent workers mistakenly assumed to represent *A. ocellaris* HENDEL (= *rondensis* STROBL). It has not yet been bred but is certainly a feeder on Gramineae.

A. rondensis STROBL and *A. conjuncta* can be readily distinguished as follows:

	Frons	Mesonotum	Squamal Fringe	Surstyli
<i>A. rondensis</i> STROBL	Brownish	Grey	Entirely white	Conspicuously elongated
<i>A. conjuncta</i> SPENCER	Black	Shining black	ochrous	not elongated



Figs. 1—3. *Agromyza bromi* sp. n.: 1, aedeagus, side view; 2, same, ventral view; 3, posterior spiracles of puparium. —

Figs. 4—6. *Agromyza conjuncta* sp. n.: 4, aedeagus, side view; 5, same, ventral view; 6, surstylus.

(Scale line = 0.1 mm.)

Agromyza luteifrons STROBL

Agromyza luteifrons STROBL, 1906. Holotype ♀ in coll. STROBL, Admont.

Agromyza albipila BECKER, 1908, **syn. nov.** Holotype ♂ in Zoologisches Museum, Berlin.

The holotype of *A. luteifrons* from Southern Spain lacks both wings but the bristles are obviously pale, which is the most conspicuous feature of *A. albipila*, described from Tenerife. I have seen the holotype of *A. albipila* and also two further males and a female from Tenerife, as well as a male and a female from Cape Province, S. Africa (SPENCER, 1966 b).

This is a somewhat variable species. The third antennal segment may be black or orange-black, the mesonotum is normally mat-grey but in the South African specimens it is somewhat more shining and the bristles can vary from obviously yellowish to blackish with a tinge of yellow. This variation was not appreciated by HENDEL and led him to retain both *luteifrons* and *albipila* as distinct species.

The male genitalia were illustrated by SPENCER (1965 b: Fig. 1, 2 and 1966 b: Figs. 3—6).

Agromyza megalopsis HERING

Agromyza megalopsis HERING, 1933: 37. Holotype ♀ in Zoologisches Museum, Berlin.

HERING described this species from a male and female caught at Bellinchen in May, 1926 and also placed as paratypes a male and female (not two females) caught at Güntersberg, Oder in May, 1929.

The aedeagus of the male from Bellinchen is shown in Figs. 7, 8. This confirms the species to be distinct, although I cannot differentiate it satisfactorily on external characters from *A. nigrella*. The male from Güntersberg is not *megalopsis* but represents *nigrella* (genitalia slide 1101).

Dr. H. BUHR in 1959 collected larvae on *Hordeum vulgare* LINNAEUS at Jena, Leutra-Tal, which later produced three females. HERING (1962: 32) identified this species as *A. megalopsis*; the puparium frequently remains in the mine and the posterior spiracles are adjoining, arising from the same base (Fig. 9).

I have recently also confirmed this species, causing damage to *Hordeum* in Württemberg: Simmringen, Kr. Mergentheim, 1 ♂, 4 ♀, 21. vi. 1965.

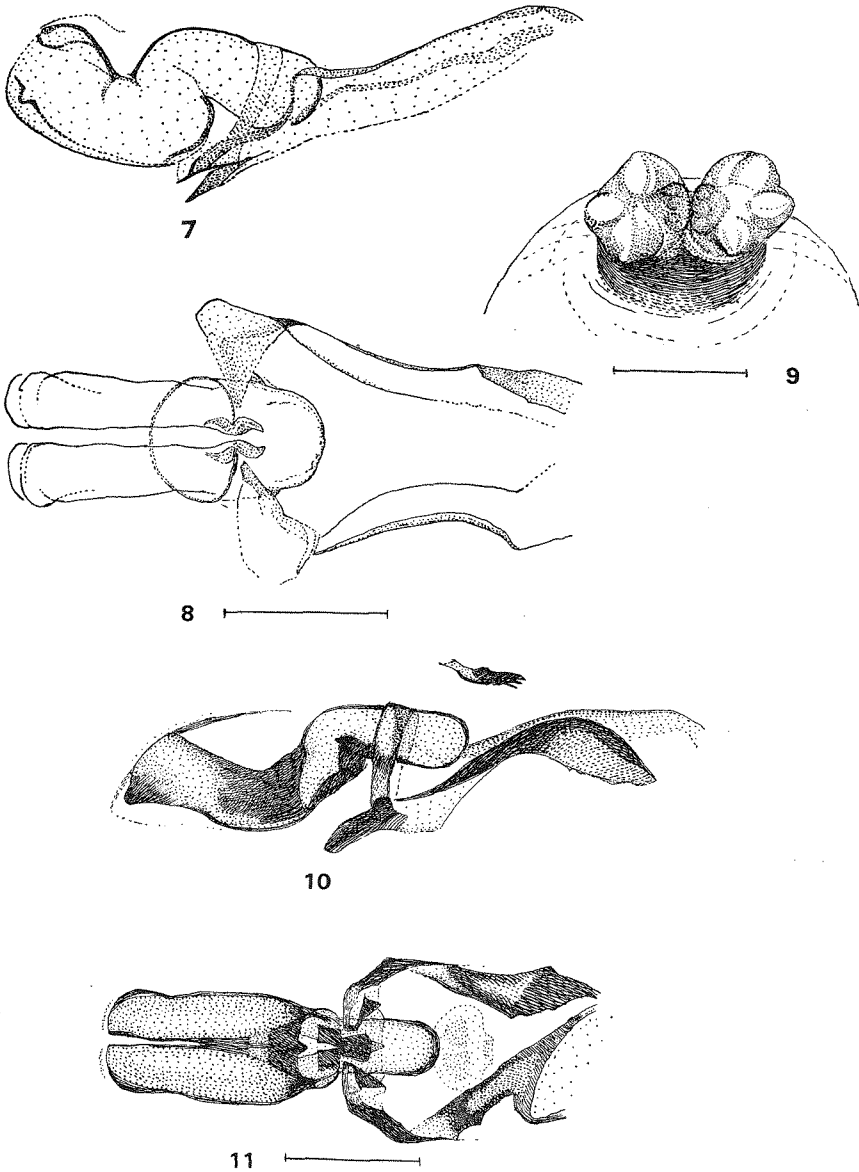
Agromyza nigrella RONDANI

Agromyza nigrella RONDANI, 1875. Holotype ♀ in Museo di Zoologia, Florence.

Agromyza ambigua sensu HENDEL, 1931—6: 103 and auctt. post; SPENCER, 1965 c:

Following examination of FALLÉN's types of *ambigua*, I established (SPENCER, 1965 c: 250) that the true *ambigua* FALLÉN is the species accepted by HENDEL (1931—6: 139) as *niveipennis* ZETTERSTEDT and that the next available name for *A. ambigua* sensu HENDEL is *nigrella* RONDANI.

The aedeagus of *nigrella* RONDANI bred from *Triticum* is shown in Figs. 10, 11.



Figs. 7—9. *Agromyza megalopsis* HERING: 7, aedeagus, side view; 8, same, ventral view; 9, posterior spiracles of puparium. —

Figs. 10—11. *Agromyza nigrella* RONDANI: 10, aedeagus, side view; 11, same, ventral view.

(Scale line = 0.1 mm.)

The posterior larval spiracles of *A. nigrella*, each bearing three bulbs, are widely separated, each arising from a separate base, as in *A. bromi* SPENCER (Fig. 3). The larvae of *A. megalopsis* HERING and *A. nigrella* are immediately distinguishable by this character.

***Agromyza rondensis* STROBL**

Agromyza nigripes var. *rondensis* STROBL, 1900a: 61. Holotype ♂ in coll. STROBL, Admont.
Domomyza rondensis (STROBL), HENDEL, 1920: 125.

Agromyza rondensis STROBL, HENDEL, 1931—6: 147.

Domomyza ocellaris HENDEL, 1920: 124. **syn. nov.** Holotype ♂ in Naturhistorisches Museum, Vienna.

Agromyza ocellaris (HENDEL), 1931—6: 140.

Agromyza nigrifemur HENDEL, 1931—6: 137, **syn. nov.** Lectotype ♂ in Naturhistorisches Museum, Vienna.

Agromyza veris HERING, 1951: 604, **syn. nov.** Holotype ♂ in Zoologisches Museum, Berlin.

I have examined the holotype of *A. rondensis* which is a male as stated by STROBL, not a female as stated by HENDEL. STROBL's description is excessively brief and is limited to the wing venation. HENDEL (1920) gave a short but accurate redescription and it would appear that he saw the type at this time; later (1931—6) the species was misleadingly compared to *A. nana* MEIGEN and it was included incorrectly in the key in couplet 42 (p. 97).

Both STROBL and HENDEL missed a significant character of *A. rondensis* — the elongated third antennal segment — as a result of the antennae in the type being bent downwards and not readily visible. The specimen is also quite unusually small, with wing length of 1.75 mm. These two facts were probably responsible for HENDEL describing the same species as new, as *Domomyza ocellaris*, from a single female from Italy (1920). This specimen is relatively large, with wing length of 3 mm (not 4 mm, as stated by HENDEL), but without question is identical with *rondensis* STROBL and is synonymised with it here-with.

There are two type specimens of *A. nigrifemur* HENDEL, a male from Finland and a female from Bokhara in the USSR. The male is designated herewith as lectotype. Both these specimens also represent *A. rondensis*.

HENDEL in his (1931—6) key, couplet 22, used two main characters to differentiate two certainly distinct species which he considered as *ocellaris* HENDEL (now spelt with one c) and *nigrifemur* HENDEL, as follows:

- 1 Stirnstrieme schwarz. Mesonotum völlig unbereift *ocellaris* HENDEL
- ... Stirnstrieme hell rot-braun. Mesonotum etwas weißlich bereift *nigrifemur* HENDEL

The characters applied to *nigrifemur* are accurate; those applied to *ocellaris* do not apply to the holotype but to three further specimens, now in the collection in Vienna, which HENDEL had in the meantime incorrectly identified as *ocellaris*. These specimens — a male without head from ?Russia and females from Yugoslavia and Italy — thus represent an undescribed species and it is this which

workers since 1936 have accepted as *ocellaris*. I have caught many specimens in Spain, both in the Barcelona area and in the south near Malaga. This species is described above as *conjuncta* sp. n.

HERING first bred *A. rondensis*, redescribing it as *A. veris* (1951); this paper contains the most detailed description of the species, including also illustrations of male genitalia and the larva. I have examined seven paratypes of *A. veris* and synonymize it herewith with *A. rondensis*.

A male from Spain: Monserrat, which I previously (SPENCER, 1960: 386) identified as *A. ocellaris*, I have now found also to represent *A. rondensis*. I have also seen two specimens caught by GRIFFITHS in England at Kent: Darenth 1. v. 1955 and Hunts.: Woodwalton Fen, 16. viii. 1960.

The essential characters of *A. rondensis* are as follows:

Head: frons broadly projecting above eye, particularly in front; jowls deeply extended at rear; third antennal segment conspicuously elongated.

Mesonotum: $3 + 2$ *dc*, decreasing in size substantially but the two pre-sutural bristles still relatively long; acrostichals irregularly in three rows in front, two only behind.

Wing: length from 1.75 in male, up to 3 mm in female; costa ending at vein r_{4+5} ; second segment short, about 3 times fourth; last and penultimate segments of m_4 approximately equal but last segment may be somewhat longer or shorter.

Colour: frons distinctly brownish, hind-margin of head and orbits black; mesonotum conspicuously grey, mat.

Male genitalia: aedeagus as in Figs. 12, 13; surstyli distinctively elongated (Fig. 14) with 4 to 6 short spines along inner margin; cerci unusually long.

This species correctly runs to couplet 8 of HENDEL's (1931—6) key to European *Agromyza* species, which should be amended as follows:

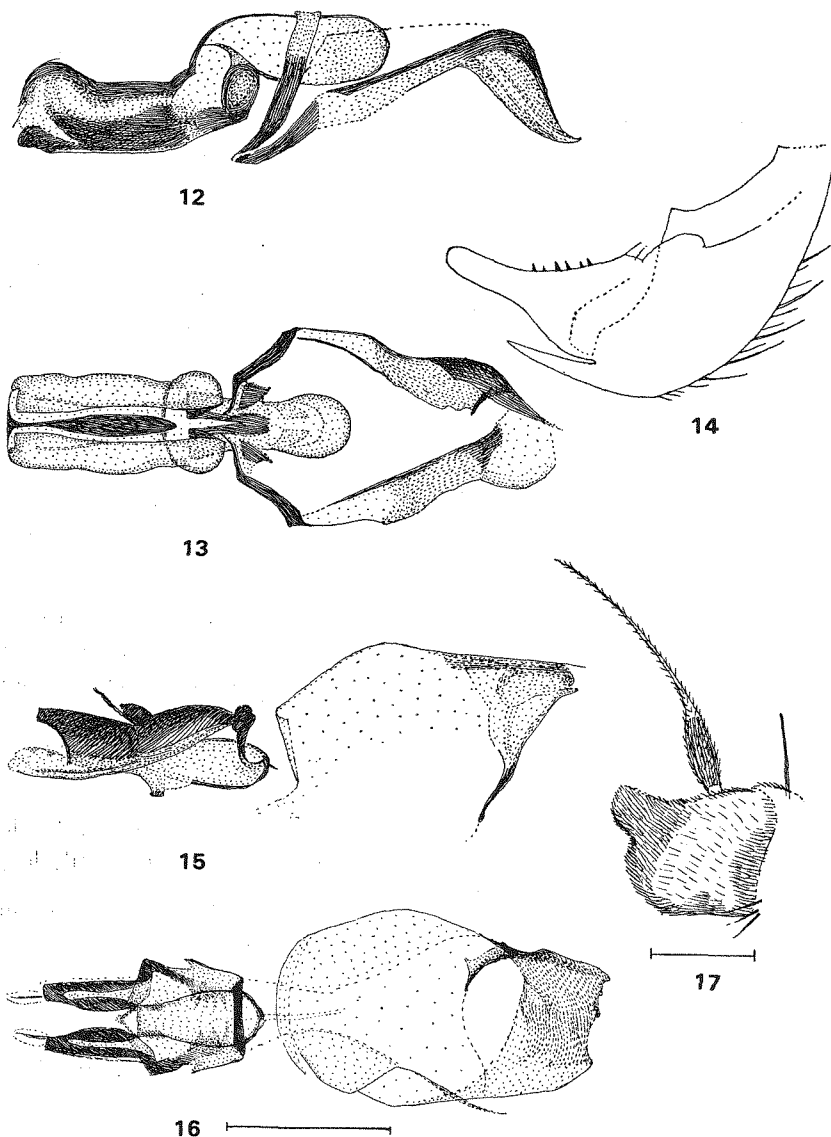
- | | | |
|----|--|-------------------------|
| 8 | Costa extends only to vein r_{4+5} | 8a |
| — | Costa extends to vein m_{1+2} | 9 |
| 8a | Frons reddish; 7—9 dorso-centrals | <i>frontosa</i> BECKER |
| — | Frons brown; $3 + 2$ <i>dc</i> | <i>rondensis</i> STROBL |

Agromyza sulfuriceps STROBL

Agromyza xanthocephala STROBL, 1893, nec ZETTERSTEDT, 1848.

Agromyza sulfuriceps STROBL, 1898. Lectotype ♂ in coll. STROBL, Admont.

This is a distinctive species with yellow frons and antennae, feeding as a leaf-miner on Rosaceae. HENDEL (1920: 120) accepted as the prior name *rubi* BRISCHKE but later (1931—6: 152) considered there was doubt about the correct identification of *rubi* and used the name *sulfuriceps* STROBL. HENDEL stated that he had seen the type.



Figs. 12–14. *Agromyza rondensis* STROBL: 12, aedeagus, side view; 13, same, ventral view; 14, surstylus. —

Figs. 15–16. *Hexomyza centaureae* sp. n.: 15, aedeagus, side view; 16, same, dorsal view. —

Fig. 17. *Cerodontha vandalitiensis* sp. n.: third antennal segment.

(Scale line = 0.1 mm.)

In fact STROBL mentions two males in his description. I designate one of these specimens, in perfect condition, as lectotype.

Clarification of *A. rubi* BRISCHKE must for the time being be left in abeyance.

Agromyza trebinjensis STROBL

Agromyza trebinjensis STROBL, 1900b: 640. Holotype ♂ in coll. STROBL, Admont.

Agromyza celtidis NOWAKOWSKI, 1960a: 367, **syn. nov.** Holotype ♂ in Zoological Institute, Warsaw.

I have examined STROBL's holotype and compared the genitalia with those of a paratype of *Agromyza celtidis* and it is clear that *celtidis* is synonymous with *trebinjensis*.

HENDEL includes *A. trebinjensis* in couplet 3 of his (1931—6) key to *Agromyza* species, whereas NOWAKOWSKI takes *A. celtidis* to couplet 7. This occurs through NOWAKOWSKI following the second alternative, rather than the first, of couplet 1, which differentiates species on the position of the apex of the wing in relation to the termination of vein m_{1+2} . This is somewhat variable and the couplet is not entirely satisfactory and this presumably explains why NOWAKOWSKI failed to identify his specimens as *A. trebinjensis*.

STROBL described *A. trebinjensis* from a single specimen caught at Trebinje near the Yugoslav Adriatic coast. NOWAKOWSKI bred his specimens from *Celtis australis* LINNAEUS at Pile, near Dubrovnik, Yugoslavia, only some 50 km. from the type locality.

I found empty mines of this species in the Botanical Gardens, Madrid on 8. xi. 1963.

Genus *Hexomyza* ENDERLEIN

This genus was revived by SPENCER (1966a) to include four European and one South African gall-causing species. A new species from Italy, *H. centaureae*, is now described below.

Although the exact feeding habit of *H. centaureae* is unknown, it must be assumed from available data that the larva feeds in the stem of *Centaurea*, pupating near the flower-head. This is of considerable interest as all other known species feed in the twigs of shrubs or trees.

A key for the identification of the five known European species is given below:

- | | | |
|---|--|------------------------------|
| 1 | Costa ending at vein r_{4+5} | 2 |
| — | Costa extending to vein m_{1+2} | 3 |
| 2 | Large species, wing length 2.5 to 3.8 mm | <i>simplicoides</i> (HENDEL) |
| — | Smaller species, wing length 1.9 to 2.8 mm | <i>salicis</i> (MALLOCH) |
| 3 | Mesonotum greyish-black; jowls deepest in centre, rounded; last section of m_4 two-thirds penultimate | <i>schineri</i> (GIRAUD) |
| — | Mesonotum more shining black; jowls flatter, projecting in front; last and penultimate sections of m_4 equal | 4 |
| 4 | Aedeagus as in SPENCER, 1966a: Figs. 63—67 | <i>sarothamni</i> (HENDEL) |
| — | Aedeagus as in Figs. 15, 16 | <i>centaureae</i> sp. n. |

Hexomyza centaureae sp. n.

Head: orbits distinctly projecting above eye, frons broad, twice width of eye; orbital bristles somewhat irregular, between 5 and 7, orbital setulae conspicuously long, reclinate; lunule semicircular; jowls one-quarter vertical height of eye, relatively flat, slightly projecting in front, cheeks forming distinct ring below eye; vibrissae very long in male; antennae separated by wide, normally low central keel; third antennal segment small, arista bare.

Mesonotum: dorso-centrals highly variable, from 2 to 3+1, not necessarily similar on the two sides; acrostichals coarse, irregular, in some 8 rows, some hairs extending to level of 1st *dc*.

Wing: length 2.7 mm, costa extending strongly to vein m_{1+2} , last and penultimate sections of m_4 equal, first crossvein slightly beyond mid-point of discal cell.

Legs: mid-tibiae without lateral bristles.

Colour: frons sooty black, ocellar triangle not conspicuously differentiated; mesonotum shining black, abdomen similar; squamae pale-grey, margin and fringe black.

Male genitalia: aedeagus distinctive, as in Figs. 15, 16.

Holotype ♂, Italy, Rome, bred from "head" of *Centaurea solstitialis* LINNAEUS, leg 3. viii. 1960 (L. ANDRES, Acc. 163D); 2♀♀ paratypes, same data.

Holotype and one paratype in U.S. National Museum, Washington, one paratype in author's collection.

This species is not distinguishable on external characters from *H. sarothamni* (HENDEL). The male genitalia however are distinctive, although obviously of the same general form as *sarothamni*. Although the data labels indicate that the three type specimens were bred from flower-heads, it is suggested that the species has the same larval feeding habits as the other species in the genus and forms stem-galls on the upper part of the stem below the flower-head.

Genus *Cerodontha* RONDANI*Cerodontha vandalitiensis* sp. n.

Head: frons narrow, equal to width of eye; orbits round, very pronounced, substantially projecting above eye in front; one strong ors, four (one side five) almost equal, incurved ori; orbital setulae reclinate, in single row; lunule high and narrow, appearing compressed between the raised orbits; eye large, conspicuously slanting, jowls deepest at rear, almost one-quarter height of eye; third antennal segment with conspicuous angle at upper corner (Fig. 17).

Mesonotum: 3 + 1 *dc*, acrostichals irregular, in some 6 rows.

Wing: length in female 2.6 mm, last section of vein m_{3+4} longer than penultimate, in ratio 26:19, first cross-vein at midpoint of discal cell.

Colour: frons brownish-black, orbits shining-black; all antennal segments black; mesonotum shining black, pleura largely black, apart from linear yellow upper and hind margins of the mesopleura and a distinct yellowing of the notopleural area and the humerus behind the bristle; scutellum greyish-yellow between the bristles; legs black, knees only narrowly yellow; abdomen black; squamal fringe brownish black.

Holotype ♀, Spain, nr. Marbella, on roadside 10 km. towards Ronda, 8. iv. 1965, in author's collection (K.A.S.).

This is a distinctive species, entirely different from any so far known. It can be included in a further extension to couplet 5 of HENDEL's (1931-6) key:

- 5 Scutellum yellow apart from black patches laterally 5a
- Scutellum entirely black 6
- 5a Mesonotum entirely black 5b
- Mesonotum partially yellow 5c
- 5b Frons and femora yellow *affinis* (FALLÉN)
- Frons and femora dark, brown or black *vandalitiensis* sp. n.
- 5c Mesonotum essentially black, with rectangular yellow patch before scutellum ...
- *phragmitophila* HERING
- Mesonotum largely yellow, with black longitudinal hands laterally *bistrigata* FREY

Genus *Amauromyza* HENDEL

Dizygomyza (*Amauromyza*) HENDEL, 1931—6: 59.

Amauromyza HENDEL, NOWAKOWSKI, 1962: 97.

Prof. E. M. HERING has long been convinced that the *Amauromyza* sp. occurring commonly in Southern Europe on *Phlomis purpurea* LINNAEUS is distinct from the smaller species feeding primarily on *Ballota* and *Marrubium* which is found throughout Europe up to Scandinavia. As a result of my discussions and correspondence with Prof. HERING on this problem, I have undertaken this brief review of this species-group.

Amauromyza balcanica HENDEL

Dizygomyza (*Amauromyza*) *balcanica* HENDEL, 1931—6: 60. Lectotype ♀ in Naturhistorisches Museum, Vienna.

The main characters separating this species from *morionella* ZETTERSTEDT are the wider distance between the antennae, the longer fourth *dc* and the larger size. Females can have a wing length of 2.7 mm. HENDEL in his description mentions seeing a number of specimens and writes „Ich besitze sie aus Athen von BECKER“. This specimen is labelled by HENDEL „*graeca* sp. n.“ but is included in the collection under *balcanica*. I designate this specimen as lectotype.

I have now established that this is the species occurring commonly in the Mediterranean area as a blotch-miner on *Phlomis* spp. Specimens bred by

HERING in Spain from *Phlomis purpurea* LINNAEUS and others caught by myself at Madrid on *Phlomis herba-venti* LINNAEUS and at Algeciras on *Phlomis purpurea* agree exactly with the lectotype.

Differences in genitalia between this species and *morionella* (ZETTERSTEDT) confirm the distinctness of the two species. NOWAKOWSKI (1962: 93) was thus incorrect in suggesting the synonymy of this species and *morionella* ZETTERSTEDT.

The aedeagus of a specimen from Algeciras is shown in Fig. 18. This closely resembles that of *morionella* (Fig. 19) but the base of the distiphallus is more strongly chitinized and closer to the supporting arms below.

One of the two specimens bred by GRIFFITHS (1964a) in N. Persia almost certainly represents this species; the second is *A. morionella* (ZETTERSTEDT).

Material seen:

GREECE: Athens, 1 ♀ (BECKER, No. 49921), lectotype.

PERSIA: Elburz Mts., Gach-i-sar, 1 ♂, 12. vi. 1962, ex leaf-mine on undetermined Labiate (G. C. D. GRIFFITHS).

SPAIN: Andalusia, Pto. Sta. Maria, 1 ♂, 2 ♀♀, April, 1933, ex *Phlomis purpurea* (HERING); Algeciras, 2 ♂♂, 1 ♀, 24. iv. 1955 (K.A.S.); Madrid, 2 ♂♂, 2 ♀♀, 22. iv. 1955, caught on *Phlomis herba-venti* LINNAEUS (K.A.S.).

Amauromyza morionella (ZETTERSTEDT)

Agromyza morionella ZETTERSTEDT, 1848. Holotype ♀ in Zoological Institute, Lund.

Agromyza novakii STROBL, 1902, **syn. nov.** Holotype ♂ in coll. STROBL, Admont.

I have examined the holotype and also two males and two females collected by RYDÉN in Sweden and am satisfied that this species is distinct from *A. balcanica* HENDEL.

I can find no difference between specimens bred from *Ballota* and *Marrubium* and in my opinion it is doubtful whether specimens bred from *Lamium*, accepted by HENDEL as *lamii* KALTENBACH, are distinct from *morionella*. I have not been able to examine any males bred from *Lamium* and clarification of this problem must wait until additional material becomes available.

The holotype of *A. novaki* STROBL has the two cross-veins distinctly more approximate (HENDEL, 1931—6: Fig. 80) than in typical *morionella* but I consider this a mere variation in venation. The first cross-vein is normally at the midpoint of the discal cell but I have seen specimens where it is well before the midpoint and also where there is variation between the two wings. The aedeagus of the holotype of *novaki* (Fig. 19) is exactly as in five other specimens of *morionella* I have examined. The minute paired areas of chitinization at the base of the distiphallus are significantly further above the V-shaped supporting arms than in *balcanica*.

Material seen:

ENGLAND: Kew Gardens, 1 ♂, 22. vii. 1955, ex *Marrubium vulgare* LINNAEUS (K.A.S.); 1 ♂, 21. vii. 1958 (HERING); Needles, Isle of Wight, 3 ♂♂, 3 ♀♀, 25. iv. 1954, ex same host (WAKELY).

GERMANY: Mühlhausen, Thuringia, 3 ♂♂, 1 ♀, 17. vi. 1959, ex *Ballota nigra* LINNAEUS (BUHR).

PERSIA: Elburz Mts., Gach-i-sar, 1 ♂, 18. vi. 1962, ex leaf-mine on undetermined Labiate (G. C. D. GRIFFITHS).

SPAIN: Barcelona-Prat, 1 ♂, 4 ♀♀, 27. iii. 1960 (K.A.S.); Murcia Prov., Totana, 1 ♂, May, 1933, ex *Ballota hirsuta* BENTH. (HERING).

YUGOSLAVIA: Komiza D., 1 ♂, 14. v. 1949 (NOVAK); Hvar, 1 ♂, 1 ♀, 21. v. 1963, on *Ballota* (HERING); Zlarin, Šibenik, 1 ♀, 10. vi. 1962, on *Marrubium incanum* DESR. (K.A.S.).

A female from Hungary: Budapest, Harmashhatahed, 27. v. 1964 (K.A.S.) appears to represent a distinct species. The mesonotum is mat-grey, not shining black as in *balcanica* and *morionella*, and all four *dc* are equal and conspicuously long.

Genus *Melanophytobia* HERING

Irenomyia NOWAKOWSKI, **syn. nov.**

Melanophytobia HERING, 1960: 127.

Irenomyia NOWAKOWSKI, 1960b.

NOWAKOWSKI (1962: 97) suggested in a footnote that *Melanophytobia* and *Irenomyia* were synonymous. The Zoological Record (1960: 316) interpreted this incorrectly, recording *Melanophytobia* as a junior synonym of *Irenomyia*. HERING (1960: 127) described *Melanophytobia* as a new sub-genus of *Phytobia* LIOY, publication date being 1 April. NOWAKOWSKI (1960: 421) described the new genus *Irenomyia* and publication date of this paper was 20 April. The correct synonymy of this genus is therefore as given above.

Melanophytobia obscura (ROHDENDORF-HOLMANOVÁ), **comb. nov.**

Xenomyza obscura ROHDENDORF-HOLMANOVÁ, 1959: 150.

Irenomyia obscura (ROHDENDORF-HOLMANOVÁ), NOWAKOWSKI, 1960b.

Genus *Liriomyza* MIK

The small group of species lacking the second crossvein have been clarified, following receipt of a species in this group, bred from leaf-mines on *Senecio jacobaea* LINNAEUS near Paris, which I have identified as *Liriomyza latigenis* HENDEL. The correct status of *Liriomyza balcanica* (STROBL) is established and three new synonymies of this species have been discovered.

A new species from Spain is described and I have also examined *Liriomyza flaveola* var. *singularis* FREY (1946) from Finland.

The species without the second cross-vein can be identified with the following key:

- | | |
|---|--------------------------|
| 1 Mesonotum broadly yellow before scutellum | 2 |
| — Mesonotum black or grey to margin of scutellum | 3 |
| 2 Mesonotum with black broken into distinct bands laterally (Fig. 23) <i>deficiens</i> HENDEL | |
| Mesonotum without such longitudinal bands (Fig. 26) | <i>myrsinitae</i> HERING |
| 3 Mesonotum shining black | <i>latigenis</i> HENDEL |
| — Mesonotum mat, greyish | |
| <i>balcanica</i> (STROBL) [= <i>esulae</i> HENDEL; <i>cyparissiae</i> GROSCHKE] | |

Liriomyza balcanica (STROBL), **comb. nov.**

Phytomyza balcanica STROBL, 1900b: 643. Holotype ♀ in coll. STROBL, Admont.

Xeniomyza ? *balcanica* (STROBL), HENDEL, 1931—6: 516.

Phytomyza Tiefii, STROBL, 1901: 73, **syn. nov.** Holotype ♂ in coll. STROBL, Admont.

Xeniomyza Tiefii (STROBL), HENDEL, 1931—6: 516.

Liriomyza de Meijeri BRYK, 1929: 288, nomen nudum.

Liriomyza esulae HENDEL, 1931—6: 216, **syn. nov.** Holotype ♂ in Zoologisches Museum, Berlin.

Liriomyza cyparissiae GROSCHKE, 1955: 176, **syn. nov.** Holotype ♂ in Staatliches Museum für Naturkunde, Stuttgart.

I have examined the two specimens referred to by STROBL in his description as *Phytomyza balcanica*, the female holotype from Trebinje and a male, doubtfully associated with the female, from Split. The male now lacks its head but the genitalia show that it represents *Phytomyza dianthicola* (VENTURI), see p. 304.

I have also examined the holotype of *Phytomyza tiefi* STROBL from Kärnten, the holotype, allotype and paratypes of *Liriomyza esulae* HENDEL and paratypes of *L. cyparissiae* GROSCHKE. It is clear that these three species represent synonyms of *L. balcanica*. The male genitalia of four specimens I have examined are identical. Although HENDEL placed both *balcanica* and *tiefi* in *Xeniomyza*, he was in doubt as to their correct identity and under *L. esulae* (1931—6: 217) he wrote: „Ohne Typenuntersuchung läßt sich auch nicht feststellen, ob die 2 Stroblschen ‘Phytomyza’-Arten *balcanica* und *Tiefi* hierherzuziehen sind.“

BRYK, whose primary interest was in teratology, received from HERING a series of this species bred from *Euphorbia esula* and considering that the absence of the second cross-vein represented a teratological form of *Liriomyza pusilla pusilla* MEIGEN (= *L. pascuum* MEIGEN), named it as *Liriomyza de Meijeri* (BRYK, 1929). No description of the species was given and it was merely stated that the second cross-vein had atrophied. BRYK was thus incorrect in assuming the absence of the second cross-vein represented a teratological character and in any case the naming of teratological forms is now specifically excluded under Article I of the 1961 International Code of Zoological Nomenclature. I therefore propose to treat *L. de Meijeri* BRYK as a nomen nudum. I would like to thank Prof. HERING for drawing my attention to BRYK's paper.

GROSCHKE (1955) cited a number of characters in attempting to differentiate *L. cyparissiae* from *L. esulae*; however, I am satisfied that the differences mentioned are artificial and are based on individual variation rather than specific distinctness. GROSCHKE was in fact misled into thinking his species was distinct from *esulae* by the apparent differences in the leaf-mines. In the narrow leaves of *Euphorbia cyparissias* the larva can only form a linear mine, while in the broader leaves of *E. esula* the mine is a distinct blotch.

The distinctive characters of *L. balcanica* are the absence of the second cross-vein, the mat-grey mesonotum and the entirely yellow hind-margin of the eye. The genitalia are distinctive; the aedeagus of the holotype of *tiefi* is shown in Figs. 20, 21; the surstyli have a conspicuously long bristle on the inner margin (Fig. 22).

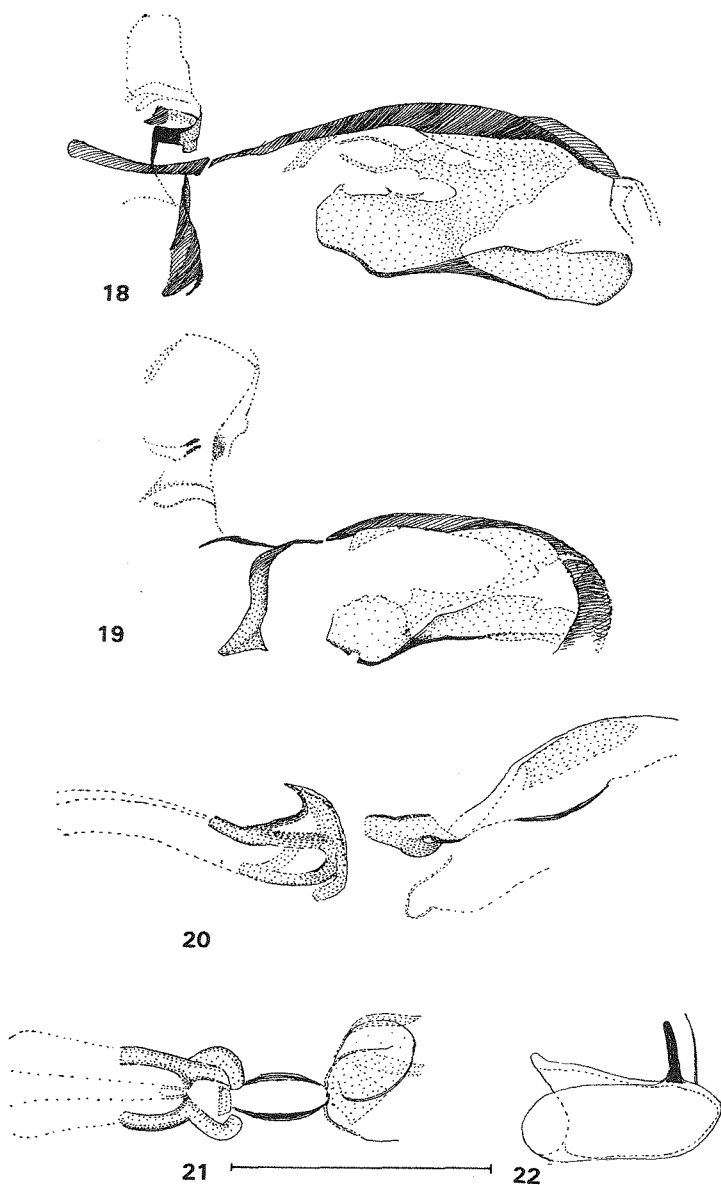


Fig. 18. *Amauromyza balcanica* HENDEL: aedeagus, side view. —

Fig. 19. *Amauromyza morionella* (ZETTERSTEDT): aedeagus, side view (holotype of *novaki* STROBL). —

Fig. 20–22. *Liriomyza balcanica* (STROBL): 20, aedeagus, side view (holotype of *tiefi* STROBL); 21, same, dorsal view; 22, surstylus.

(Scale line = 0.1 mm.)

Liriomyza deficiens HENDEL

Liriomyza deficiens HENDEL, 1931—6: 215. Lectotype ♀ in Naturhistorisches Museum, Vienna.

There are two specimens in HENDEL's collection, a female lacking its abdomen but otherwise in perfect condition, which is now designated as lectotype, and a specimen labelled as ♂ but without either head or abdomen.

Apart from the absent second cross-vein the species is distinctive in the coloration of the mesonotum (Fig. 23); the dark areas are mat-black, with only a faint trace of sub-shine.

Liriomyza latigenis (HENDEL)

Haplomyza latigenis HENDEL, 1920: 145. Holotype ♀ not in Naturhistorisches Museum, Vienna, apparently lost.

Liriomyza latigenis (HENDEL), HENDEL, 1931—6: 227.

This species was described from a single female from Spain. The significant characters are the lack of the second cross-vein and entirely shining black mesonotum.

I have examined a series of 4 ♂♂ and 3 ♀♀ bred from leaf-mines on *Senecio jacobaea* LINNAEUS near Paris by Dr. K. E. FRICK which appears to represent this species. The distinctive aedeagus is shown in Figs. 24, 25.

Liriomyza myrsinitae HERING

Liriomyza myrsinitae HERING, 1957b: 11. Holotype ♂ in author's collection.

The distinctive aedeagus of this species is shown in Fig. 26 and the mesonotum in Fig. 27. In HENDEL's (1931—6) key *L. myrsinitae* correctly runs to couplet 11 where it is immediately distinguishable from *L. deficiens* HENDEL as indicated in the key given above.

Liriomyza singularis FREY

Liriomyza flaveola var. *singularis* FREY, 1946: 27. Holotype ♀ in University Museum, Helsinki.

Following my recent study of FALLÉN's types of *L. flaveola* I examined *singularis* FREY and have established that it is not in any way connected with *L. flaveola*. The femora are not in fact black but are essentially yellowish, though appearing black on the upper side. The species runs to couplet 43 in HENDEL's key (1931—6: 201), where it can be readily differentiated from *bulbata* HENDEL by the differently shaped arista.

This species was overlooked when I described *Liriomyza singularis*, 1963c from Australia; I now propose as a new name for this species: *Liriomyza significans*. I am grateful to Mr. G. STEYSKAL, U.S. Department of Agriculture, Washington for drawing my attention to this homonymy.

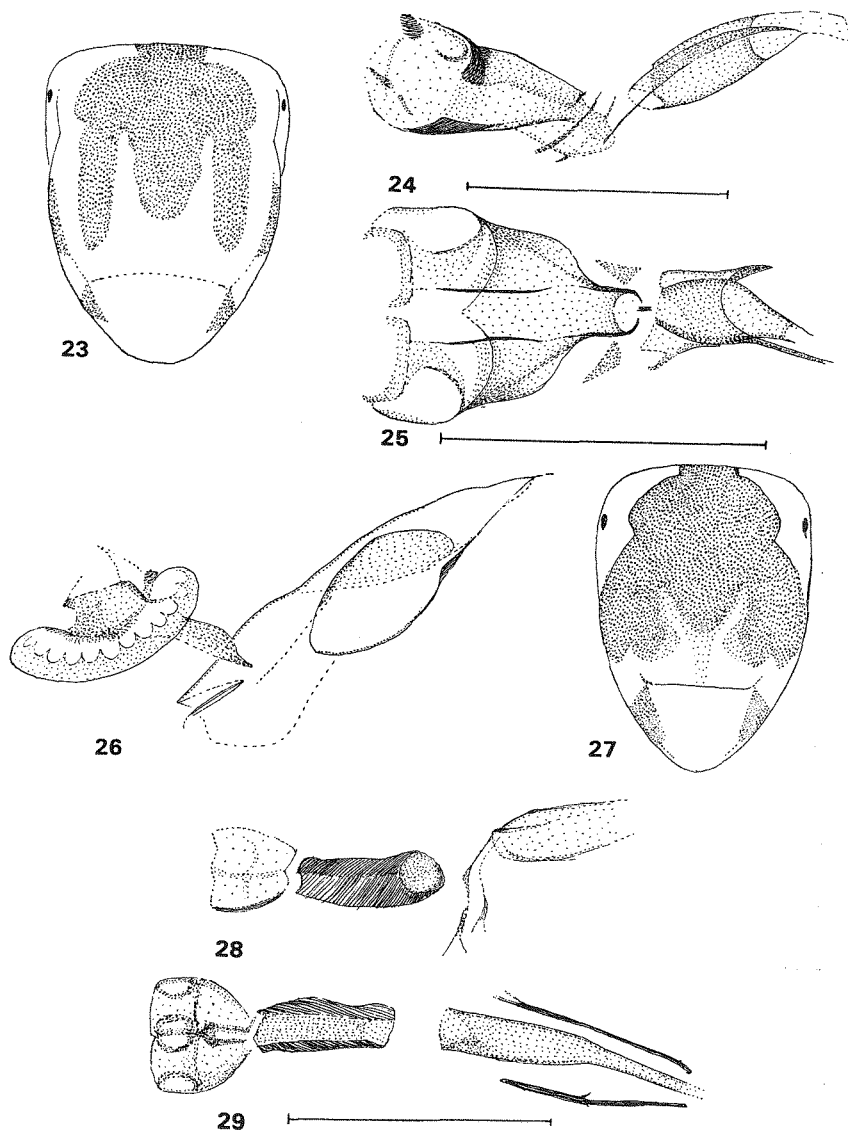


Fig. 23. *Liriomyza deficiens* HENDEL: mesonotum. —

Figs. 24—25. *Liriomyza latigenis* HENDEL: 24, aedeagus, side view; 25, same, ventral view. —

Figs. 26—27. *Liriomyza myrsinitae* HERING: 26, aedeagus, side view; 27, mesonotum. —

Figs. 28—29. *Liriomyza tibidabensis* sp. n.: 28, aedeagus, side view; 29, same, ventral view.

(Scale line = 0.1 mm.)

Liriomyza tibidabensis sp. n.

Head: frons broad, twice width of eye, strongly projecting above eye in profile, increasingly so anteriorly; one ors directed upwards, four only slightly weaker ori directed inwards; orbital setulae minute, sparse; jowls very broad, extended at rear, half vertical height of eye; third antennal segment small, round, with normal pubescence.

Mesonotum: third and fourth *dc* weak, little stronger than acrostichals, these in two irregular rows, not extending to first *dc*.

Wing: length 1.5 mm, last and penultimate sections of vein *m*₁ in ratio 8:30; first cross-vein at distal third of discal cell.

Colour: an unusually dark species; both *vte* and *vti* on brownish ground which extends along orbits to basal pit of ors; frons brownish-yellow; third antennal segment brownish-black on outside, paler, more yellowish on inside; mesonotum entirely mat black, with only slight sub-shine, without yellow patches at hind-corners, scutellum predominantly dark, greyish-yellow centrally; mesopleura largely black, yellow only on upper front and hind corners, sternopleura black except on extreme upper margin, hypopleura and pteropleura black; abdomen entirely black; legs: almost entirely black, femora with faintly yellow knees; squamae and fringe black; halteres yellow.

Male genitalia: aedeagus as in Figs. 28, 29; mesophallus elongate, conspicuously dark; membranous gap dividing mesophallus and basiphallus; surstyli elongate, with a short, strong spine and one or two hairs at end, as frequently found in this genus.

Holotype ♂, Spain, Tibidabo above Barcelona, 20. iv. 1958 (K.A.S.), in author's collection.

This species runs to couplet 24 in HENDEL's (1931—6: 198) key to *Liriomyza* spp. *L. tibidabensis* closely resembles *L. orbona* MEIGEN and *L. orbonella* HENDEL but is smaller and darker; the genitalia show that it is not closely related to these two species. The genitalia suggest a relationship to the sonchi group and it may well thus be a leaf-miner on Compositae.

Genus *Lemurimyza* SPENCER

Lemurimyza SPENCER, 1965a: 26.

This genus was erected primarily for two species from Madagascar and Nepal and it was found that a small number of European species also correctly belong here. It is now found that one of STROBL's species, *Agromyza mikii*, also belongs to this genus.

Lemurimyza mikii (STROBL), **comb. nov.**

Agromyza mikii STROBL, 1893: 272. Holotype ♂ in coll. STROBL, Admont.

Agromyza mikii v. *frauscheri* STROBL, 1901. Holotype ♂ in coll. STROBL, Admont.

Liriomyza mikii (STROBL), HENDEL, 1920: 144; 1931—6: 232.

I have examined the types of both *miki* and v. *frauscheri* and confirm that the two are identical, as already established by HENDEL. It is correct, however, as noticed by STROBL that the halteres of *miki* are definitely brown, not yellow.

The genitalia of this species are characteristic and immediately show that it correctly belongs to the genus *Lemurimyza* (cf. SPENCER, 1965a: 26—30). It is worth noting here that both *L. enormis* (SPENCER) 1963d and *L. admirabilis* SPENCER, 1965a have dark-brown or black halteres and it is clear there is a tendency to having dark halteres in the species of this genus.

The aedeagus of *L. miki* is shown in Fig. 30 and the very distinctive surstyli in Fig. 31.

HENDEL (1931—6: 232) suggested that *L. miki* might possibly be identical with *pectoralis* BECKER. This is not so but *pectoralis* also belongs to *Lemurimyza*; the genitalia were illustrated by SPENCER (1965a: Figs. 58, 59).

Genus *Phytagromyza* HENDEL

This genus, in which 35 European species have been described, includes several species groups which do not appear to be directly related, despite their superficial resemblance on external characters. However, it is not possible to split up the genus satisfactorily until all species can be clarified. Four species are discussed below, including a new species bred from stems of *Clematis recta* LINNAEUS.

Phytagromyza anomala (STROBL)

Phytomyza anomala STROBL, 1893: 307. Lectotype ♂ in coll. STROBL, Admont.

Phytagromyza anomala (STROBL), HENDEL, 1920: 148; 1931—6: 277.

Although STROBL originally described this species in 1880 he did not give it a name, referring to it as *Agromyza* sp. n. Only later, in 1893, was a valid description published and the species was then placed in *Phytomyza*.

I have seen STROBL's type series and have selected one male, in perfect condition, as lectotype. The aedeagus of this specimen is shown in Fig. 32. I can confirm that HENDEL's (1931—6: 277) detailed re-description represents a correct interpretation of the species.

Phytagromyza anteposita (STROBL)

Phytomyza anteposita STROBL, 1898: 275. Holotype ♀ in coll. STROBL, Admont.

Phytagromyza anteposita (STROBL), HENDEL, 1920: 146; 1931—6: 278.

I have examined the holotype of *P. anteposita*, a female in perfect condition, and confirm that HENDEL's interpretation of this species is correct. The biology was established by Sönderup who bred the species from the stem of *Galium mollugo* LINNAEUS in Denmark.

I have also seen specimens from Switzerland: Montreux; England: Kent, Darenth and Mddx., Scratch Wood; Austria: Langenzersdorf; and Germany: Görlitz and Landskrone.

Phytagromyza dianthicola (VENTURI)

Pseudonapomyza dianthicola VENTURI, 1949: 162; 1951: 433. Cotypes in Istituto di Entomologia Agraria, Florence; in coll. VENTURI; and in author's collection.

Pseudonapomyza jannonei SÉGUÏ, 1950: 56—61. Holotype in Musée d'Histoire Naturelle, Paris.

Phytagromyza dianthicola (SÉGUÏ), HERING, 1957a: 395.

This species was described as a pest of cultivated carnations (*Dianthus caryophyllus* LINNAEUS) in Italy.

I have recently bred the species from carnations being sold in Budapest on 26. vi. 1963 and have also seen a bred specimen from Belgium.

The aedeagus of a cotype in my collection is shown in Fig. 33. This confirms that the species does not belong to the genus *Pseudonapomyza*, despite the characteristic angle on the third antennal segment (VENTURI, 1949: Fig. 1).

The male from Split, Yugoslavia referred by STROBL (1900b: 643) to *Phytomyza balcanica* represents *dianthicola*. The species no doubt occurs widely with its food-plant but I could not detect it on carnations growing near Malaga, Spain which I examined on 9 April, 1965.

Phytagromyza mayeri sp. n.

Head (Fig. 34): orbits conspicuously projecting above eye, broadest above, narrowing below; one ors, two strong ori, the upper distinctly more inclined than the lower; orbital setulae virtually lacking, possibly a single minute hair present; jowls two-thirds height of eye, cheeks broad, half height of jowls; eye conspicuously slanting, with horizontal axis longer than vertical in ratio 8:6; third antennal segment slightly elongated, rounded at end.

Mesonotum: 3 + 1 *dc*, decreasing in size uniformly, *acr* lacking.

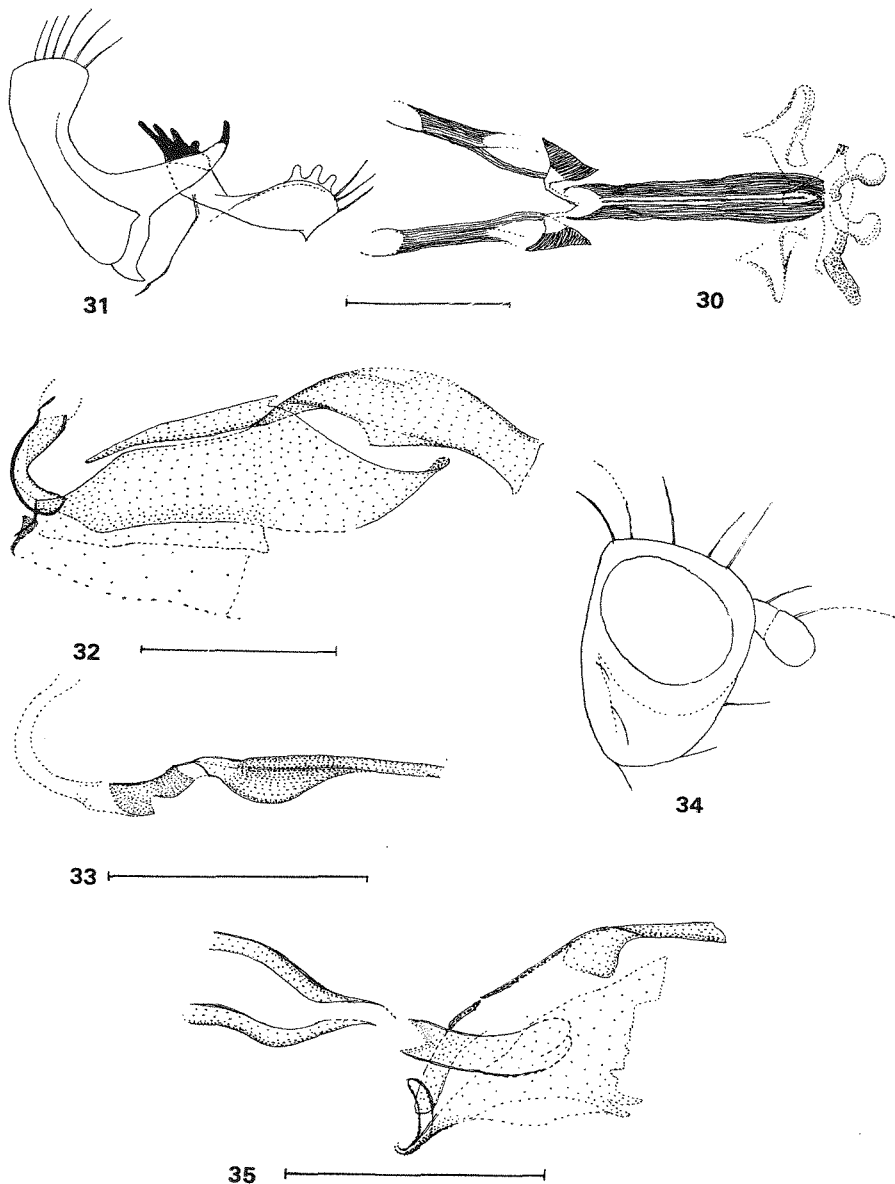
Wing: length 1.7 mm, costa ending at vein r_{4+5} , second cross-vein lacking; second costal segment short, $2\frac{1}{2}$ times third.

Colour: frons, orbits, jowls yellow; antennae largely yellow but third segment black on outer side; hindmargin of head yellow, except for faint greyish area where diagonal bands from rear of head reach eyemargin beyond *vte*; mesonotum faintly grey, with the three longitudinal bands largely confluent, central area adjoining scutellum yellow; scutellum broadly grey at sides, with narrow yellow band centrally; pleura and legs entirely yellow; abdomen largely yellow, but all tergites slightly greyish centrally.

Holotype ♀, Austria, Vienna, Eichkogel, ex stem of *Clematis recta* LINNAEUS, emerged 21. iii. 1953 (H. MAYER), temporarily in author's collection, to be deposited in Naturhistorisches Museum, Vienna.

This species can be included in the following revised and extended couplets of HENDEL's (1931—6: 275) key to palaearctic *Phytagromyza* species:

- | | |
|--|-----------------------------|
| 16 All bristles at least partially yellowish | 17 |
| — Bristles black | 18 |
| 17 Bristles entirely yellow; longitudinal bands of mesonotum rusty-yellowish | |
| | <i>populicola</i> (HALIDAY) |



Figs. 30—31. *Lemurimyza miki* (STROBL): 30, aedeagus; 31, surstylus. —
 Fig. 32. *Phytagromyza anomala* (STROBL): aedeagus, side view. —
 Fig. 33. *Phytagromyza dianthicola* (VENTURI): aedeagus, side view. —
 Fig. 34. *Phytagromyza mayeri* sp. n.: head. —
 Fig. 35. *Ptochomyza czernyi* (STROBL): aedeagus, ventral view.
 (Scale line = 0.1 mm.)

- Bristles yellowish-black; bands of mesonotum black; two white patches of pubescence at rear of head *tridentata* (LOEW)
- 18 Labelli elongated, narrow; 5—6 dorsals; acr in 2 rows; 3—4 *ori* *hamata* HENDEL
- This combination of characters not present 19
- 19 Mesopleura black below *populivora* HENDEL
- Mesopleura entirely yellow 20
- 20 Third antennal segment yellow; bands of mesonotum dark, greyish-black; rear of head black; second costal segment $3\frac{1}{2}$ times third *populi* (KALTENBACH)
- Third antennal segment black on outer side; bands of mesonotum pale, only faintly greyish; rear of head pale, with two faint grey bands extending obliquely up to hind margin of eye; second costal segment $2\frac{1}{2}$ times length of third *mayeri* sp. n.

HERING (1958) misidentified this species as *Phytomyza czernyi* STROBL, believing STROBL's type to be lost. However, I was able to discover STROBL's holotype in his collection and it clearly represents a distinct species belonging to the genus *Ptochomyza* (see below).

The larva of this species forms a shallow mine beneath the external stem epidermis apparently always commencing in a petiole. The puparium is believed to remain in the stem (private communication by MAYER to HERING). I have pleasure in naming this species after Dr. H. MAYER, the Austrian Dipterist who died in 1954 at the early age of 34.

Genus *Ptochomyza* HERING

Two species have hitherto been known in this genus, *P. asparagi* HERING, 1942 and *P. asparagivora* SPENCER, 1964a.

Examination of the holotype of *Phytomyza czernyi* STROBL shows that it also belongs to this genus.

The three species can be distinguished as follows:

- 1 Notopleural triangle with a single bristle on lower margin *asparagi* HERING
- Notopleural triangle with two bristles 2
- 2 Mesonotum with three blackish-grey bands; acr in two rows .. *asparagivora* SPENCER
- Mesonotum uniformly grey; acr lacking *czernyi* (STROBL)

Ptochomyza czernyi (STROBL), **comb. nov.**

Phytomyza Czernyi STROBL, 1909: 298; HENDEL, 1931—6: 390. Holotype ♂ in coll. STROBL, Admont.

HENDEL retained this species in the genus *Phytomyza*, commenting that he was unable to locate the specimen in STROBL's collection. Having now examined the holotype, it is immediately clear from the distinctive wing venation that it can be closely associated with the two other known *Ptochomyza* species. The male genitalia also closely resemble those of *P. asparagivora* which were recently illustrated by SPENCER (1964a: Fig. 51).

The aedeagus of *P. czernyi* is shown in Fig. 35.

HERING (1958) misidentified as *Phytomyza czernyi* STROBL a minute species bred by Dr. H. MAYER from stems of *Clematis recta* LINNAEUS nr. Vienna. This species is described as *Phytagromyza mayeri* sp. n. above.

Genus *Phytomyza* FALLÉN*Phytomyza ciliata* HENDEL

Phytomyza ciliata HENDEL, 1931—6: 375. Syntypes in Naturhistorisches Museum, Vienna.

HENDEL described this species from a male and female caught in the Grossglockner area of the Austrian Alps.

Leaf-mines on *Chrysanthemum leucanthemum* LINNAEUS which I found at Bérisal, Switzerland on 2. viii. 1956 and assumed to be of *Phytomyza atricornis* MEIGEN produced two females on 17. viii. 1956 which are clearly referable to *P. ciliata*. The species has characteristically long whitish pubescence on the third antennal segment. The host-plant of *P. ciliata* has not hitherto been known.

Phytomyza rufipes MEIGEN

Phytomyza rufipes MEIGEN, 1830: 192.

Phytomyza bistrigata STROBL, 1906: 384; HENDEL, 1920: 156; 1931—6: 471. Syntypes in coll. STROBL, Admont.

I have examined two syntypes of *P. bistrigata* in perfect condition and confirm that the synonymy established by HENDEL is correct.

Phytomyza scolopendrii ROBINEAU-DESVOIDY

Phytomyza scolopendrii ROBINEAU-DESVOIDY, 1851: 402.

Phytomyza nevadensis STROBL, 1900a: 66. Holotype ♂ in coll. STROBL, Admont.

This synonymy was established by HENDEL (1931—6: 474). I have examined STROBL's holotype of *P. nevadensis* and have confirmed from its genitalia that HENDEL's synonymy is correct. The species occurs widely in Europe as a leaf-miner on the ferns, *Scolopendrium*, *Polypodium* and *Asplenium*.

Phytomyza spoliata STROBL

Phytomyza spoliata STROBL, 1906: 383; HENDEL, 1931—6: 484. Holotype ♀ in coll. STROBL, Admont.

I have examined the holotype, a female in almost perfect condition and can confirm that the species has been correctly interpreted by HENDEL (1931—6: 484 and Fig. 483).

Summary

Thirty species of European Agromyzidae are discussed and their status clarified, and 10 new synonymies are established. The male genitalia of 16 species are illustrated. Six new species are described in the genera *Agromyza* FALLÉN, *Hexomyza* ENDERLEIN, *Cerodontha* RONDANI, *Liriomyza* MIK and *Phytagromyza* HENDEL.

Zusammenfassung

Dreißig Arten von europäischen Agromyziden werden besprochen und ihre Stellung geklärt sowie zehn neue Synonymien festgestellt. Die männlichen Genitalien von 16 Arten

werden illustriert. Sechs neue Arten in den Gattungen *Agromyza* FALLÉN, *Hexomyza* ENDERLEIN, *Cerodontha* RONDANI, *Liriomyza* MIK und *Phytomyza* HENDEL werden beschrieben.

Резюме

Тридцать видов европейских Agromyzidae описываются, выясняется их систематическое место и отмечаются 10 новых синонимов. Мужской половой аппарат от 16 видов иллюстрируется. Шесть новых видов описываются в родах *Agromyza* FALLÉN, *Hexomyza* ENDERLEIN, *Cerodontha* RONDANI, *Liriomyza* MIK и *Phytomyza* HENDEL.

References

- BECKER, TH., Dipteren der Kanarischen Inseln. Mitt. Zool. Mus. Berlin, IV, 166—171; 1908.
- BRYK, F., Nachschrift zur Klärung des Teratologiebegriffes. Ent. Ztschr. Frankfurt, 42 (22), 287—289; 1929.
- FREY, R., Anteckningar om Finlands agromyzider. Not. ent., 26, 13—55; 1946.
- GRIFFITHS, G. C. D., A revision of the *nigripes* group of the genus *Agromyza* (Diptera, Agromyzidae). Tijd. Ent., 106, 113—168; 1963.
- , A note on some Agromyzidae (Diptera) from Northern Persia, including a new *Liriomyza* species. Ent. mon. Mag., 49 (1963), 75—79; 1964a.
- , The Agromyzid fauna of Iceland and the Faroes, with Appendices on the *Phytomyza milii* and *robustella* Groups (Diptera, Agromyzidae). Ent. Medd., 32, 393—450; 1964b.
- , The Agromyzidae (Diptera) of Greenland. Medd. om Grønland, Bd. 170, Nr. 4, p. 1—32; 1966.
- GROSCHKE, F., Miscellen über Blattminen und -minierer II. Dtsch. ent. Z. (N.F.), 2 (3/4), 171—181; 1955.
- HENDEL, F., Die paläarktischen Agromyziden (Prodromus einer Monographie). Arch. f. Naturg. A., 84 (7), 109—174; 1920.
- , Agromyzidae. In: LINDNER, E., Die Flieg. pal. Reg., 6, 1—570; 1931—6.
- HERING, E. M., Neue Agromyziden. (Dipt.). Konowia, 12, 33—40; 1933.
- , Ein neuer Spargelfeind. Die Zwergspargelfliege (*Ptochomyza asparagi* g. n., sp. n.). Ztschr. f. Pflanzenkr. u. Pflanzenschutz, 52, 529—533; 1942.
- , Ein neuer Getreideschädling. Ztschr. f. angew. Ent., 32, 604—608; 1951.
- , Bestimmungstabellen der Blattminen von Europa. Bd. I, 1—648, Dr. W. JUNK, den Haag; 1957a.
- , Bestimmungstabellen der Blattminen von Europa, Bd. III, 1—221, Dr. W. JUNK, den Haag; 1957b.
- , Stengelbewohnende Larven an *Clematis recta* L. Dtsch. ent. Z. (N.F.), 5 (1/2), 72—78; 1958.
- , Neue Blattminen-Studien. Dtsch. ent. Z. (N.F.), 7 (1—2); 119—145; 1960.
- , Neue Blattminen-Studien II. Dtsch. ent. Z. (N.F.), 9, 30—65; 1962.
- MEIGEN, J. W., Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten, 6, 166—196; Hamm, 1830.
- NOWAKOWSKI, J. T., Studien über Minierfliegen (Dipt. Agromyzidae). 3. Revision der in Labiaten und Boraginaceen minierenden Arten aus der Gruppe der *Phytomyza obscura* HEND. Dtsch. ent. Z. (N.F.), 6 (1—3), 185—229; 1959.
- , Studien über Minierfliegen (Diptera, Agromyzidae). 5. Eine neue Art von *Agromyza* FALL. aus Jugoslawien. Bull. Ent. Pologne, 30 (19), 367—379; 1960a.
- , Studies on mining flies (Diptera, Agromyzidae). 4. A new palaearctic genus on Leguminosae. Ann. Zool. Warsaw, 18 (23), 421—433; 1960b.
- , Introduction to a Systematic Revision of the Family Agromyzidae (Diptera). Ann. Zool. Warsaw, 20, 67—183; 1962.
- , Studien über Minierfliegen (Dipt. Agromyzidae). 9. Revision der Artengruppe *Agromyza reptans* FALL. — *A. rufipes* MEIG. Dtsch. ent. Z. (N.F.), 11 (1—2), 175—213; 1964.

- ROBINEAU-DESVOIDY, M., Descriptions d'Agromyzes et de Phytomyzes écloses chez M. le colonel GOUREAU. Rev. Mag. Zool., **3**, 391—405; 1851.
- ROHDENDORF-HOLMANOVÁ, E. B., Zwei neue Agromyziden-Arten (Diptera) aus der *Caragana arborescens* LAM. Acta Soc. Ent., Cech., Praha, **56** (2), 150—154; 1959.
- RONDANI, C., Dipterologia Italica. Stirps XXII Agromyzinae. p. 166—189; 1875.
- SÉGUY, E., Un nouveau *Phytomyza* parasite des oeillets cultivés. Ann. Mus. Civico Storia Nat. Genova, **64**, 56—61; 1950.
- SPENCER, K. A., Seven new species of Agromyzidae from Spain, together with other new and interesting records. Eos, **36**, 375—386; 1960.
- , A new *Phytomyza* species on *Plantago media* L. Stuttgart. Beitr. Naturkunde, Nr. 103, 1—5; 1963a.
- , The *Agromyza rufipes* MG. group of leaf-miners on Boraginaceae (Diptera). Stuttgart. Beitr. Naturkunde, Nr. 115, 1—6; 1963b.
- , The Australian Agromyzidae. Rec. Aust. Mus. Sydney, **25**, 305—354; 1963c.
- , Notes on the Agromyzidae of Madagascar - 1. Proc. R. ent. Soc. Lond. (B), **32**, 114 to 116; 1963d.
- , Notes on the African Agromyzidae (Diptera)-5. Dtsch. ent. Z. (N.F.), **11** (1/2), 15—41; 1964a.
- , A revision of the palaearctic species of the genus *Ophiomyia* BRASCHNIKOV (Diptera: Agromyzidae). Beitr. Ent., **14**, 773—822; 1964b.
- , Diptera from Nepal. Agromyzidae. Bull. Brit. Mus. (Nat. Hist.), Ent., **16** (1), 25—31; 1965a.
- , Notes on the Agromyzidae (Diptera) of the Canary Islands. Stuttgart. Beitr. Naturkunde, Nr. 140, p. 1—5; 1965b.
- , A clarification of FALLÉN's type specimens of Agromyzidae (Diptera) in Stockholm and Lund. Ent. Tidsk., **86**, 249—259; 1965c.
- , A revision of European species of the genera *Melanagromyza* HENDEL and *Hexomyza* ENDERLEIN, with a supplement on the genus *Ophiomyia* BRASCHNIKOV. Beitr. Ent., **16**, 3—60; 1966a.
- , Notes on the African Agromyzidae (Diptera) - 6. Journ. Ent. Soc. South Africa; 1966b.
- STROBL, P. G., Dipterologische Funde um Seitenstetten. Programme des k. k. Ober-Gymnasiums der Benedictiner in Seitenstetten. XIV, p. 2—65; 1880.
- , Neue österreichische Muscidae Acalypterae. IV. Theil. Wien. ent. Z., **12**, 306—8; 1893.
- , Die Dipteren von Steiermark. IV. Theil. Mitt. naturwiss. Vereins Steiermark. **34**, 192—298; 1898.
- , Spanische Dipteren. IX. Theil. Wien. ent. Z., **19**, 61—70; 1900a.
- , Dipterenfauna von Bosnien, Hercegovina und Dalmatien. Wiss. Mitt. Bosnien u. Hercegovina, **VII**, 552—670; 1900b.
- , TREF's dipterologischer Nachlaß aus Kärnten und Österr.-Schlesien, nebst eigenen Funden aus Kärnten. Jahrb. nat. Landesmus. Kärnten, **24**, 171—246; 1901.
- , Novi prilosi fauni Diptera balkanskog poluostrva. Glasnik zemaljski Musej u Bosni i Hercegovini, **14**, 461—517; 1902.
- , Spanische Dipteren. II. Beitrag (1). Mem. Real Soc. Esp. Hist. Nat., **3** (5), 271—422; 1906.
- , Neue österreichische Muscidae Acalypterae II. Wien. ent. Z., **28**, 283—301; 1909.
- VENTURI, F., *Pseudonapomyza dianthicola* n. sp. minatrice delle foglie di garofano. Redia, **34**, 161—164; 1949.
- , Sulla attribuzione generica della *Pseudonapomyza dianthicola* VENT. (Dipt., Agromyzidae). Redia **36**, 433—437; 1951.
- ZETTERSTEDT, J. W., Diptera Scandinaviae, **7**, 2728—2844; Lundae, 1848.
- , Diptera Scandinaviae, **14**, 6191—6609; Lundae, 1860.
- ZOOLOGICAL RECORD. 13. Insecta-Agromyzidae, 316—317; 1960.